United States Department of the Interior

NATIONAL PARK SERVICE

North Cascades National Park
Lake Chelan National Recreation Area
Ross Lake National Recreation Area
810 State Route 20
Sedro-Woolley, Washington 98284-9394

IN REPLY REFER TO:

October 15, 2014

Memorandum

To: Christine S. Lehnertz, Director, Pacific West Region

From: Karen F. Taylor-Goodrich, Superintendent, North Cascades National Park Complex

Through: Stephen J. Mitchell, PE, Operations/Environmental Programs Branch Chief, Pacific West Region

Subject: Approval and Funding for a Non-Time-Critical Removal Action at Stehekin and Newhalem Firing Ranges, North Cascades National Park Complex

1.0 PURPOSE

The purpose of the Action Memorandum (AM) is to request approval of and document the proposed non-time critical removal action described herein for lead-contaminated soil at the Stehekin and Newhalem firing ranges (Sites) located within North Cascades National Park Complex (NOCA) in Washington. Figures 1-1 and 1-2 in Appendix A depict the location and layout of the Stehekin Site, respectively. Figures 1-3 and 1-4 in Appendix A depict the location and layout of the Newhalem Site, respectively.

This AM was prepared according to the guidelines proposed in *Superfund Removal Guidance for Preparing Action Memoranda* (USEPA, 2009). This AM is supported by the *Engineering Evaluation/Cost Analysis* (EE/CA, RMC, 2014).

The AM is organized as follows:

Section 1 - Purpose. Includes the purpose and organization of this memorandum, and the type of action being recommended.

Section 2 - Site Conditions and Background. Describes the background of the Site and provides historical and characterization information associated with the contamination.

Section 3 - Threats to Public Health, Welfare or the Environment, and Statutory and Regulatory Authorities. Includes a description of potential threats to the public and environment, and possible routes of exposure and contaminant migration.

Section 4 - Endangerment Determination. Provides a determination of the threat classification from hazardous substance releases.

Section 5 - Proposed Actions and Estimated Costs. Proposes removal actions, defines applicable or relevant and appropriate requirements (ARARs), and presents estimated costs.

Section 6 – Expected Change in the Situation Should Action Be Delayed or Not Taken. Describes the expected change in the actual or potential threats to sensitive receptors should the proposed action be delayed or not taken.

Section 7 – Outstanding Policy Issues. States that there are no outstanding policy issues.

Section 8 –Recommendation. Describes the recommended action for the Site.

2.0 SITE CONDITIONS AND BACKGROUND

The Environmental and Disposal Liabilities (EDL) Database has been used to track estimated cleanup costs for both the Stehekin firing range (EDL Site Code 5PWR1678) and the Newhalem firing range (EDL Site Code 5PWR1679) in accordance with federal mandates. The following section provides an overview of the Sites' history and current characteristics, describes the Sites and their historical uses, discusses the nature and extent of surface soil contamination and describes the information obtained in the EE/CA (RMC, 2014).

2.1 Site Description

The Stehekin firing range is approximately 25 yards in length with four target boards. The firing range is located in a forested area on the extreme lower flank of Rainbow Mountain, adjacent to McGregor Meadows in a former borrow pit.

The Newhalem firing range was established by Seattle City Light employees in the 1950s by clearing an opening in a densely forested area of the valley, with a target area approximately 75

feet wide containing eight target structures and backed by a nine-foot-high soil berm to the north built up against a crib wall of cedar logs.

2.1.1 Removal Site Evaluation

Government agencies and the public have used lead shot without collection or containment for decades at both Sites. There has been one previous investigation conducted at each Site as follows:

- Preliminary Assessment of Two Sites, North Cascades NPS Complex, Stehekin, Washington (Kleinfelder, 2003a).

- Preliminary Assessment of Firing Range, North Cascades NPS Complex, Newhalem, Washington (Kleinfelder, 2003b).

The results of both investigations stated that existing data and information did not indicate a threat to human health, the surrounding environment, or local wildlife (Kleinfelder, 2003a and 2003b). No data was collected at the firing ranges.

2.1.2 Physical Location

The Stehekin Site is located within Lake Chelan National Recreation Area in Chelan County, Washington, within North Cascades National Park Complex. The town of Stehekin lies at the head of Lake Chelan, approximately 55 miles by boat from Chelan, Washington, and the area is accessible only by boat, plane, or hiking through extensive wilderness. The firing range is located at the end of a 300-foot access road diverging from the Stehekin Valley Road approximately 7.5 miles from the Stehekin Landing. The range is in a forested area on the extreme lower flank of Rainbow Mountain and adjacent to McGregor Meadows. The target area, backed by a low soil berm the east and west and located at the foot of a cut bank to the north, is approximately 50 feet wide.

The Newhalem Site is located within Ross Lake National Recreation Area, in Whatcom County, Washington, within North Cascades National Park Complex. The firing range is located approximately 2,000 feet northwest of the Skagit River (at river mile 92), to the north of Washington State Route 20. The firing range is located in an opening in a densely forested area of the valley, with a target area approximately 75 feet wide containing eight target structures and backed by a nine-foot-high soil berm to the north built up against a crib wall of cedar logs. A small galvanized metal shack, which was relocated to the site by Seattle City Light personnel after the Site's establishment, is located north of the cedar crib wall and contains bullet holes on all sides. The dirt access road cuts perpendicular to a power line and is closed to the public by a locked gate.

2.1.3 Site Characteristics

The Stehekin site is not currently used by NPS personnel and will be closed to the public in 2015. The Newhalem site is open only to NPS Law Enforcement personnel and other law enforcement personnel authorized by the Chief Ranger. Since 2007, NPS personnel have made an effort to replace leaded ammunition with "green" (non-leaded) ammunition for firearms qualification and practice purposes. The Sites are located in unpopulated areas and consist of small clearings in the surrounding forest at the terminus of dirt access roads.

Both Sites are located on federal property and currently managed by the NPS. NOCA is the only active Potentially Responsible Party (PRP) associated with the Sites. However, other entities may retain liability at the Newhalem Site given the range of PRPs defined in CERCLA Section 107(a). NOCA can identify PRPs by collecting site documents, conducting interviews, and performing research, and may seek to obtain PRP participation through settlements. NOCA also has the authority to take the lead for cleanup activities and seek to recover its costs from PRPs. The removal action proposed in this AM is the first removal for the Sites.

2.1.4 Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant or Contaminant

Lead is considered a persistent, bioaccumulative and toxic (PBT) hazardous substance that has the potential to cause adverse impacts to human health and the environment. Soil lead concentration data collected at both Sites was compared to State of Washington Model Toxics Control Act (MTCA, 173-340 WAC) Method A regulatory cleanup levels which are summarized as follows:

- Human Health – Unrestricted use: 250 parts per million (ppm)
- Ecological Health – Plants: 50 ppm
- Ecological Health – Soil Biota: 500 ppm
- Ecological Health – Wildlife: 118 ppm

<u>Stehekin</u>

Samples were collected from four decision units (DUs). Stehekin sample DU locations are presented in Figure 2-1. One DU (DU Background) was delineated specifically for the collection of a background sample. This background DU was located outside of the range area. The three remaining DUs were delineated on and near the firing range.

Lead concentrations at the Stehekin firing range ranged from 10 to 427 ppm. The sample collected for background purposes contained a lead concentration of 10 ppm. These results are

comparable to the 90th percentile background concentration of 10.9 ppm as per Table 13 of WaDOE publication #94-115 (WaDOE, 1994). One DU (DU 2) contained lead concentrations above the MTCA unrestricted (e.g. residential) land use concentration of 250 ppm. DU 1 and DU 2 contained lead concentrations greater than MTCA ecological soil screening criteria for plants of 50 ppm. One DU (DU 2) contained lead concentrations greater than MTCA ecological wildlife screening criteria of 118 ppm. All three DUs contained lead concentrations below MTCA ecological soil biota screening criteria of 500 ppm.

Newhalem

Samples were collected from five DUs. Newhalem sample DU locations are presented in Figure 2-2. One DU (DU Background) was delineated specifically for the collection of a background sample. This background DU was located outside of the range area. The four remaining DUs were delineated on and near the firing range.

Lead concentrations at the Newhalem firing range ranged from 136 to 2,730 ppm. The sample collected for background purposes contained a lead concentration of 9 ppm. These results are below the background 90th percentile concentration of 11 ppm as per Table 13 of WaDOE publication #94-115 (WaDOE, 1994). Two DUs (DU 2 and DU 3) contained lead concentrations above MTCA unrestricted (e.g. residential) land use concentration of 250 ppm. All four DUs contained lead concentrations greater than MTCA ecological soil screening criteria for plants of 50 ppm. All four DUs outside of the background area contained lead concentrations greater than MTCA ecological wildlife screening criteria of 118 ppm. Two DUs (DU 2 and DU 3) contained lead concentrations above MTCA ecological soil biota screening criteria of 500 ppm.

2.1.5 National Priorities List (NPL) Status

The Sites are not listed or proposed for listing on the NPL.

2.1.6 Maps, Pictures and Other Graphic Representations

Figure 1-1, Figure 1-2 and Figure 2-1 in Appendix A depict the location and layout of the Stehekin Site. Figure 1-3, Figure 1-4 and Figure 2-2 in Appendix A depict the location and layout of the Newhalem Site.

2.2 Other Actions to Date

2.2.1 Previous Actions

There has been one previous investigation conducted at each Site as follows:

- Preliminary Assessment of Two Sites, North Cascades NPS Complex, Stehekin, Washington (Kleinfelder, 2003a).
- Preliminary Assessment of Firing Range, North Cascades NPS Complex, Newhalem, Washington (Kleinfelder, 2003b).

The results of both investigations stated that existing data and information did not indicate a threat to human health, the surrounding environment, or local wildlife (Kleinfelder, 2003a and 2003b). No data was collected at the firing ranges.

The EE/CA was conducted in 2013-2014. An EE/CA report was prepared for the Site (RMC, 2014). The purpose of the EE/CA is to characterize the nature and extent of contamination at the Site and to conduct a comparative analysis of the alternatives for cleaning up or removing hazardous substances released to the environment which will eliminate or reduce the potential risk to human health and the environment. The EE/CA report is comprised of a Site characterization summary, identification and evaluation of removal alternatives, and a description of the recommended alternative.

The EE/CA report was made available to the public and notice of the EE/CA report was posted in three local newspapers. No written comments were received. Public meetings were held in Stehekin, WA on July 22nd, 2014 and in Newhalem, WA on July 24th, 2014. Limited verbal comments were received at the public meetings which did not impact the recommended alternative in the EE/CA. Those comments and responses have been included in the Administrative Record.

2.2.2 Current Actions

No cleanup actions have been performed at the Sites to date. Actions proposed in this AM will comprise the final cleanup for the Sites.

2.3 State and Local Authorities Role

The NPS is the lead agency for the Site. The NPS has not requested assistance from the USEPA, State or local governments.

2.3.1 State and Local Actions to Date

No State or local actions have been performed at the Site to date.

2.3.2 Potential for Continued State/Local Response

Site activities have a low potential for State and/or local response.

3.0 THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

The constituent of potential concern (COPC) for the Site is lead. Based on available Site data, lead concentrations exceed the USEPA and Washington Model Toxics Control Act (MTCA) screening levels as described below. Lead concentrations are present at hazardous levels and any work performed in these areas should follow health and safety protocols for working with hazardous waste.

Streamlined human and ecological risk evaluations were performed as part of the EE/CA (RMC, 2014).

The Streamlined Human Health Risk Evaluation (HHRE) based human health risk-related criteria for lead on the following:

- USEPA Region 9 Residential Preliminary Remediation Goal (PRG) of 400 ppm (USEPA, 2010);
- USEPA Region 3 Residential Risk-Based Concentration (RBC) of 400 ppm (USEPA, 2010);
- Regional Screening Levels (RSL) for Chemical Contaminants at Superfund Sites of 400 ppm (USEPA, 2010); and
- MTCA soil screening criteria of 250 ppm for unrestricted use (WaDOE, 2007).

This Streamlined HHRE compared on-Site concentrations of lead in soil to the values described above:

- The maximum lead concentration of 427 ppm for DU 2 at Stehekin exceeded all of the above described screening values. The remaining DUs met the screening criteria described above.

- The maximum lead concentration of 2,730 ppm for DU 3 at Newhalem exceeded all of the above described screening values. DU 2 also exceeded all of the above described screening values. The remaining DUs met the screening criteria described above.

Both Sites contain maximum lead concentrations that exceeded screening values, thus the Sites "fail" and they can go directly into the corrective action process.

This Streamlined Ecological Risk Evaluation (ERE) based ecological risk-related criteria for lead on the following[1]:

- Oak Ridge National Laboratory (ORNL) Toxicological Benchmarks for Screening Contaminants of Potential Concern of 500 ppm for earthworms and 900 ppm for soil microorganisms and microbial processes (ORNL, 1997); and
- MTCA soil screening criteria (WaDOE, 2007) of 50 ppm for plants, 500 ppm for soil biota and 118 ppm for wildlife.

The Streamlined ERE compared on-Site concentrations of lead in soils to the values described above:

- The maximum lead concentration of 427 ppm at Stehekin exceeded MTCA soil screening criteria (WaDOE, 2007) of 50 ppm for plants and 118 ppm for wildlife.

- The maximum lead concentration of 2,730 ppm at Newhalem exceeded all of the above described screening values.

Both Sites contain maximum lead concentrations that exceeded screening values, thus the Sites "fail" and they can go directly into the corrective action process.

Threats to public health or welfare are summarized as they relate to the pertinent NCP factors (from section 300.415(b)(2)) below:

- ***Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.***
    - *For Human receptors, the primary migration pathway would be ingestion of contaminated media (e.g. soil). The primary human receptor would be site workers and recreational users. Exposure is minimized by the isolated location of the Sites.*
    - *For ecological receptors, the primary migration pathway is the consumption of lead through ingestion or adsorption from other media (e.g., soil) into biological*

[1] The MTCA Cleanup Regulation ecological indicator soil concentration for protection of wildlife was based on a Toxicity Reference Value (TRV) that is higher than the TRV and associated Ecological Soil Screening Level for avian ground insectivores recommended by federal (USEPA) guidelines. Soil lead concentration cleanup levels may be reviewed and verified as being protective of site-specific avian ground insectivores prior to execution of the proposed action.

tissue. Lead is a toxin that primarily affects the nervous system of wildlife but can affect nearly every organ.

- ***Actual or potential contamination of drinking water supplies or sensitive ecosystems.***
  - *Lead has the potential to reach shallow groundwater by downward leaching caused by infiltration of precipitation.*
- ***High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate.***
  - *The firing range target areas containing lead contaminated soils contain no barriers or linings used to prevent a release to the soil at the Sites. Migration of lead is limited by the vegetated nature of the Sites.*
- ***Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.***
  - *Due to the heavy vegetation surrounding the Sites, an extreme storm event would be required to cause the off-Site migration of contaminants. Sediment from the Stehekin firing range could potentially migrate during extreme flooding of the Stehekin River. Sediment from the Newhalem firing range could potentially reach the Skagit River if Goodell Creek migrated across its alluvial fan during an extreme storm event, or if any of the Skagit Hydroelectric Project dams failed during an earthquake and caused catastrophic downstream flooding of the Skagit River.*

4.0 ENDANGERMENT DETERMINATION

The endangerment determination for the Site, based on the exceedances of applicable screening levels identified in the EE/CA and repeated in Section 3.0, is that actual or threatened releases of hazardous substances from this Site may present an imminent and substantial endangerment to public health, or welfare, or the environment.

5.0 PROPOSED ACTIONS AND ESTIMATED COSTS

5.1 Proposed Actions

Based on the ARARs and conclusions of the risk evaluations presented in the EE/CA report, full removal, onsite treatment and off-site disposal at an appropriate disposal facility is the recommended alternative for both Sites. Excavation, onsite treatment and off-site disposal provides maximum protection to human health and the environment.

5.1.1 Description of Proposed Action

The Proposed Action is full removal, onsite treatment and offsite disposal at an appropriate disposal facility. This alternative involves the removal of contaminated soils and was selected due to effectiveness and implementability. The following work tasks are summarized below:

Stehekin

1. DU 1 and DU 2 will be cleared of vegetation (some large trees may be left in place). Cleared vegetation will be left on-site and may be chipped/mulched for use during reclamation/revegetation;
2. Contaminated soils in DU 1 and DU 2 will be excavated to depths of six inches and one foot, respectively (1,190 tons total);
3. Confirmation sampling will be conducted (to confirm that all contaminated soils have been removed);
4. Excavated soils would undergo proprietary treatment on-site by a waste management contractor to immobilize the lead present to levels that would be classified as non-hazardous as determined by TCLP;
5. Waste characterization samples (TCLP) would be collected from treated soils to confirm that the soils classify as non-hazardous waste prior to offsite shipment;
6. The soils would then be loaded into containers for transport, including barge transport from Stehekin 55 miles down Lake Chelan, to an appropriate off-site disposal facility (soils would be disposed of as a solid waste as per 40 CFR 261.2 and not subject to Off-Site Rule requirements for hazardous waste);
7. The Site will be re-contoured and re-vegetated using native plant species and local organic material.

Newhalem

1. DU 1, DU 2, DU 3 and DU 4 will be cleared of vegetation (some large trees may be left in place), and the galvanized metal shack located in DU2 will be removed. Cleared vegetation will be left on-site and may be chipped/mulched for use during reclamation/revegetation;
2. Contaminated soils in DU 1, DU 2, DU 3 will be excavated to a depth of one foot, and contaminated soils in DU 4 will be excavated to a depth of six inches. (2,500 tons total);
3. Confirmation sampling will be conducted (to confirm that all contaminated soils have been removed);

4. DU 3 soils (200 tons) would undergo proprietary treatment on-site by a waste management contractor to immobilize the lead present to levels that would be classified as non-hazardous as determined by TCLP;
5. Waste characterization samples (TCLP) would be collected from treated and untreated soils to confirm that the soils classify as non-hazardous waste prior to offsite shipment;
6. The soils would then be loaded into containers for transport to an appropriate offsite disposal facility (soils would be disposed of as a solid waste as per 40 CFR 261.2 and not subject to Off-Site Rule requirements for hazardous waste);
7. The Site will be re-contoured and re-vegetated using native plant species and local organic material.

Excavation and disposal involve the removal of the contaminated materials, on-site treatment of a portion of the contaminated materials, final classification of the material as RCRA Subtitle D non-hazardous material, and subsequent disposal in any USEPA-compliant landfill licensed to accept the material. All excavated material will be managed in accordance with all applicable federal, state and local requirements. Confirmation samples will be collected to determine that all contamination has been removed. Removal to an off-site facility would provide the highest level of protection to human health and the environment as all contaminated materials would be removed.

A small increase in short-term risk to human health would be encountered during the excavation and transport phase of this work due to the high number of truck trips required at the Newhalem Site and the potential for an increase in fugitive dust generation. Impacts associated with construction activities are considered short term, and should not significantly impact human health. Additionally, short-term air quality impacts to the immediate environment may occur during excavation of contaminated soils. Control of fugitive dusts may be required on-site and will be conducted by wetting soils as required. All soils will be transported in covered trucks and/or containers.

5.1.2 Contribution to Remedial Performance

In evaluating the appropriateness of a removal action, NPS must consider whether the removal action would contribute to the efficient performance of any anticipated long-term remedial action with respect to the release concerned (NCP Section 300.415(d)). The removal action described herein is intended to constitute the final CERCLA response action at the Site; no additional remedial action is required.

5.1.3 Engineering Evaluation/Cost Analysis

An EE/CA report (RMC, 2014) has been prepared, approved by NPS and placed in the Administrative Record. The EE/CA report includes a discussion of alternative actions considered for non-time-critical removal actions. Portions of the EE/CA report are incorporated by reference into this AM. No significant comments on the EE/CA were made during the public comment period. General comments provided verbally during the public meetings and written responses to those comments have been included in the Administrative Record.

5.1.4 ARARS (Applicable or Relevant and Appropriate Requirements)

Consistent with CERCLA Section 121(d) and in compliance with NCP Section 300.415(j), CERCLA removal actions must, to the extent practicable considering the exigencies of the situation, attain ARARs under federal environmental or state environmental or facility siting laws at the completion or during the implementation of the removal action, or both depending on the nature of the requirements.

Pursuant to its delegated CERCLA lead agency authority, NPS has identified applicable or relevant and appropriate requirements (ARARs) in the Stehekin and Newhalem Firing Ranges EE/CA. The results of the ARAR analysis, including state ARARs, are summarized in the EE/CA report. ARARs are divided into contaminant-specific, location-specific and action-specific requirements.

Contaminant-specific ARARs govern the release of material containing specific contaminants. In the case of the Stehekin and Newhalem Firing Ranges, contaminants are limited to lead.

Location-specific ARARs relate to the geographic or physical location of the Site, rather than the nature of contaminants. These ARARs place restrictions, such as the concentration of hazardous substances or the conduct of cleanup activities, due to their location in the environment.

Action-specific ARARs are usually technology- or activity-based requirements on actions taken with respect to hazardous substances. A particular remedial activity will trigger an action-specific ARAR. Unlike contaminant- or location-specific ARARs, action-specific ARARs do not determine the remedial alternative to be used, but rather how the selected remedy must be achieved.

The following requirements presented in Table 5-1 were found to be applicable or relevant and appropriate.

Table 5-1: Potential Chemical Specific ARARs

Requirement	Citation	Description	Determination	Comment
Site Cleanup	Chapter 173-340 WAC	Model Toxics Control Act (MTCA)	Applicable	MTCA establishes administrative processes and standards to identify, investigate, and clean up facilities where hazardous substances have come to be located.
Washington Surface Water Quality Standards	Chapter 173-201A WAC	Establishes surface water quality standards. Washington has received approval from USEPA to adopt standards more stringent than federal standards.	Potentially Applicable	Potentially applicable for Site surface and storm water discharges.
Groundwater Quality Standards	Chapter 173-201A WAC	Establishes state groundwater quality standards.	Potentially Relevant and Appropriate	Potentially relevant and appropriate to any discharges of contaminants to ground water (if any).
Storm Water Rules - Water Pollution Control Act	Chapter 90.48 RCW	Establishes state storm water requirements.	Applicable	Applicable during any Removal Action that requires construction.

Table 5-1 (continued): Potential Location Specific ARARs

Requirement	Citation	Description	Determination	Comment
Protection of Wetlands	33 USC § 1344 and 40 CFR Part 6, Appendix A, Executive Order No. 11990	Mandates that federal agencies and potentially responsible parties (PRPs) avoid, to the extent possible, the adverse impacts associated with the destruction or loss of wetlands and to avoid support of new construction in wetlands if a practicable alternative exists. Also prohibits discharge of dredged or fill materials into waters of the United States.	Potentially Applicable	Measures will be developed to avoid, restore, or mitigate impacts to jurisdictional wetlands, if any.
National Historic Preservation	16 U.S.C. §§ 470 et seq, 40 CFR § 6.301(b), 36 CFR Part 800	Requires protection of district, site, building, structure or object eligible for inclusion in national register of historic places.	Applicable	Proposed activities will be designed to not adversely affect any such historic district, site, building, structure or object.
Archeological and Historic Preservation Act	*16 U.S.C. §§ 469 et seq., 40 CFR § 6.301(c)*	Requires preservation of significant historical and archeological data.	Applicable	Proposed activities will not adversely affect archeological data or landmarks.
Historic Sites, Buildings, and Antiquities Act	16 U.S.C. § 461 et seq., 40 CFR § 6.310(a)	Requires Federal agencies, in conducting an environmental review of a remedial action, to consider, inter alia, the existence and location of historic or prehistoric sites, buildings, objects, and properties of national historical or archaeological significance.	Applicable	Will apply to buildings deemed historic (Newhalem, if required). Proposed activities will not adversely affect natural landmarks.

Requirement	Citation	Description	Determination	Comment
Fish and Wildlife Coordination Act	16 USC § 1531 *et* seq, 16 U.S.C. §§ 661 *et seq*. and 40 CFR § 6.302(g)	Requires that actions taken in areas that may affect streams and rivers be undertaken in a manner that protects fish and wildlife.	Applicable	USFWS will be contacted if required.
Endangered Species Act	16 U.S.C. §§ 1531 - 1544, 50 CFR Part 402, and 40 CFR § 6.302(h))	Requires protection of endangered and threatened species.	Applicable	USFWS will be contacted if required.
Migratory Bird Treaty Act	16 USC § 703 *et seq*	Requires protection of migratory nongame birds.	Applicable	USFWS will be contacted if required.
Solid Waste Handling Standards	Chapter 173-350 WAC	Establishes requirements for handling of solid wastes.	Applicable	Applicable to material handling and treatment.
Floodplain Management Order	40 CFR Part 6, Appendix A, Executive Order No. 11988	Mandates that federally funded or authorized actions within the 100 year floodplain avoid, to the maximum extent possible, adverse impacts associated with development of a floodplain.	Potentially Applicable	Measures will be developed to avoid, restore, or mitigate impacts within the 100 year floodplain, if any.
Resource Conservation and Recovery Act (RCRA)	40 CFR § 264.18 (a)	Any discrete waste units created or actively managed at the cleanup of a NPS Site must comply with the siting restrictions and conditions.	Applicable	Applicable to waste left on-Site.
Resource Conservation and Recovery Act (RCRA)	40 CFR § 261	Defines hazardous waste, solid waste, and when discharged ammunition is considered to be solid waste.	Applicable	Applicable to waste left on-Site and waste disposed of offsite.
Native American Graves Protection and Repatriation Act (NAGPRA)	25 U.S.C. § 3001; 43 CFR §§ 10.1 - 10.17	NAGPRA and its implementing regulations provide for the disposition of Native American remains and objects inadvertently discovered on federal or tribal lands after November 1990.	Potentially Applicable	Applicable to Native American remains and objects inadvertently discovered on-Site.

Requirement	Citation	Description	Determination	Comment
Solid Waste Disposal in National Parks	16 U.S.C. §§ 4601 - 22(c) et seq and 36 CFR Part 6	Applies to creation of any new solid waste disposal units within the boundary of an NPS unit.	Applicable	No new sites for disposal of solid waste may be created within NPS boundaries unless an extensive set of criteria are met.
The National Park Service Organic Act	16 U.S.C. §§ 1-3	The Organic Act and the statute establishing the affected NPS unit do not allow permanent or long-term restrictions on public access to the Site as a component of the selected remedial action.	Applicable	The Organic Act and the statute establishing the affected NPS unit do not allow permanent or long-term restrictions on public access to the Site as a component of the selected remedial action

Table 5-1 (continued): Potential Action Specific ARARs

Requirement	Citation	Description	Determination	Comment
Site Cleanup	Chapter 173-340 WAC	Model Toxics Control Act (MTCA)	Applicable	MTCA establishes administrative processes and standards to identify, investigate, and clean up facilities where hazardous substances have come to be located.
Air Pollution	Chapter 173-470 WAC	General requirements for compliance with National Ambient Air Quality Standards (NAAQS).	Potentially Applicable	Potentially applicable to earth moving, grading, and excavating activities that may result in release of contaminants to air.
Fugitive Dust Control	Chapter 173-400 WAC	Establishes requirements for fugitive dust, construction activities, and roadways associated with Site cleanup.	Potentially Applicable	Potentially applicable to earth moving, grading, and excavating activities that may result in dust.
Solid Waste Handling Standards	Chapter 173-350 WAC	Establishes requirements for handling of solid wastes.	Applicable	Applicable to material handling and treatment.

5.1.5 Project Schedule

This removal action alternative at both Sites would be completed in a relatively short period of time, estimated at 90 days maximum per Site, and no permanent facilities would be required.

5.2 Estimated Costs

The estimated capital cost to implement the removal action at Stehekin is approximately $1,012,439.35. The estimated capital cost to implement the removal action at Newhalem is approximately $755,345.50. Post-construction maintenance will be limited to reclamation confirmation. Site restoration will be required following excavation of contaminated soils for off-Site disposal. Detailed cost breakdowns for both Sites are presented in Table 4-2 and Table 4-5 of the EE/CA Report (RMC, 2014). The following table presents a summary of the estimated costs for excavation and disposal.

Table 5-2: Estimated Costs for Excavation and Disposal

Stehekin

Task	Description	Cost
Direct Capital Costs	Excavation, treatment, and off-site disposal of 1,190 tons of soil. Soil sampling. Site reclamation.	$776,982.50
Long-Term Operation and Maintenance.	Confirm reclamation, 5-year review.	$20,000.00
Indirect Capitol Costs	Project management, design, plan preparation, removal action oversight, health and safety. Includes a contingency based on 15% of capital costs.	$215,456.85
Total Costs		**$1,012,439.35**

Newhalem

Task	Description	Cost
Direct Capital Costs	Excavation, treatment, and off-site disposal of 200 tons of soil. Excavation and off-site disposal of 2,300 tons of soil. Soil sampling. Site reclamation.	$573,725.00
Long-Term Operation and Maintenance.	Confirm reclamation, 5-year review.	$7,500.00
Indirect Capitol Costs	Project management, design, plan preparation, removal action oversight, health and safety, Environmental Stewardship Plan. Includes a contingency based on 15% of capital costs.	$174,120.50
Total Costs		**$755,345.50**

6.0 EXPECTED CHANGE IN SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

A delay in the action, or no action at this Site would prolong exposure to receptors present in the nearby environment.

7.0 OUTSTANDING POLICY ISSUES

None.

8.0 RECOMMENDATION

This decision document represents the selected removal action for the Stehekin and Newhalem Firing Ranges within the North Cascades National Park Complex developed in accordance with CERCLA as amended, and is not inconsistent with the NCP. This decision is based on the administrative record for the Site.

Conditions at the Site meet the NCP Section 300.415(b) criteria for a removal action and through this document I am approving the proposed removal action.

Recommended: _____ Date: 10/20/14

Kerri L. Cook
Facility Operations Specialist and Community Involvement Coordinator
North Cascades National Park Complex

Concurred: _____ Date: 10/27/14

Karen F. Taylor-Goodrich
Superintendent
North Cascades National Park Complex

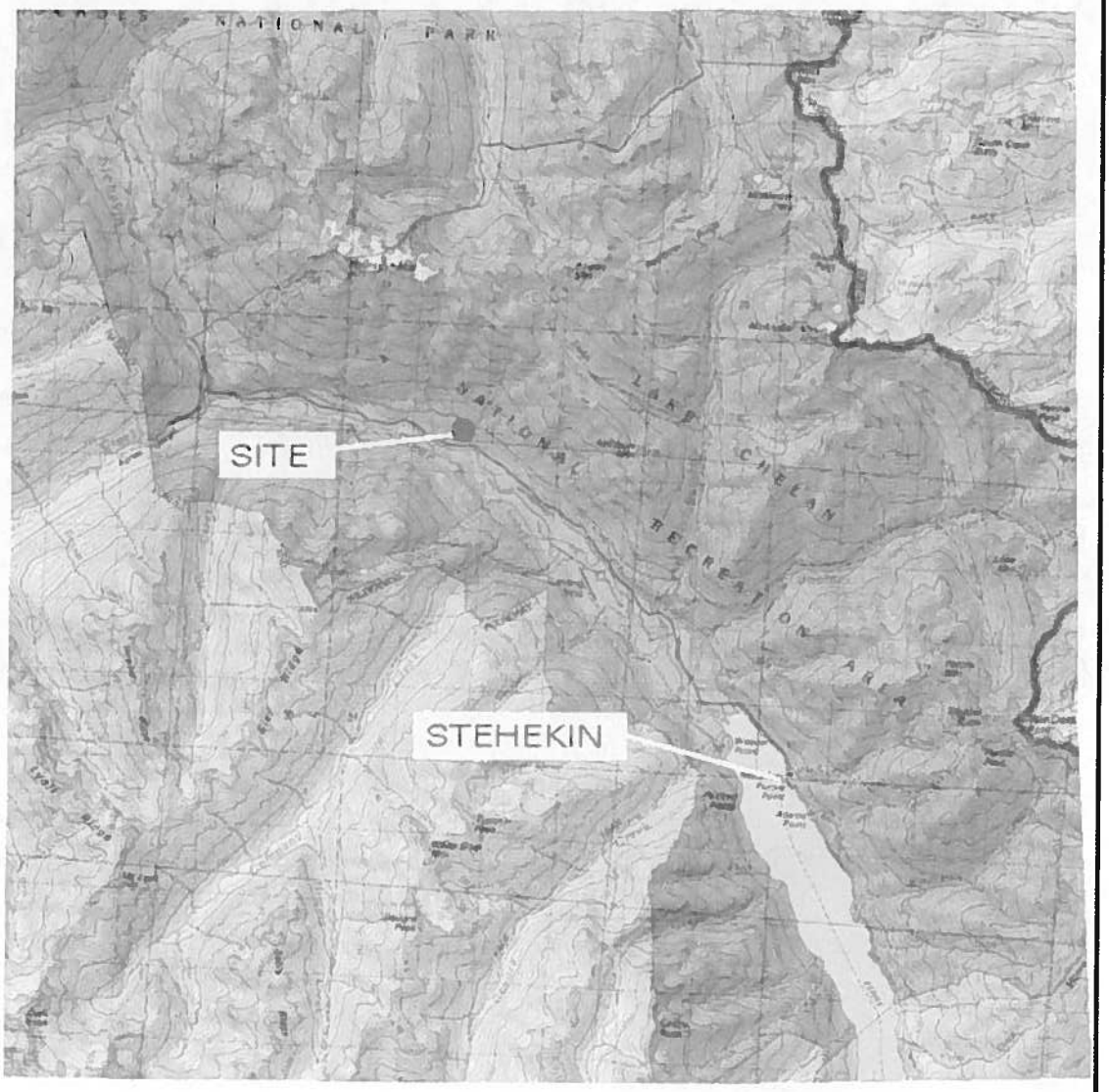
Concurred: _____ Date: 11.4.14

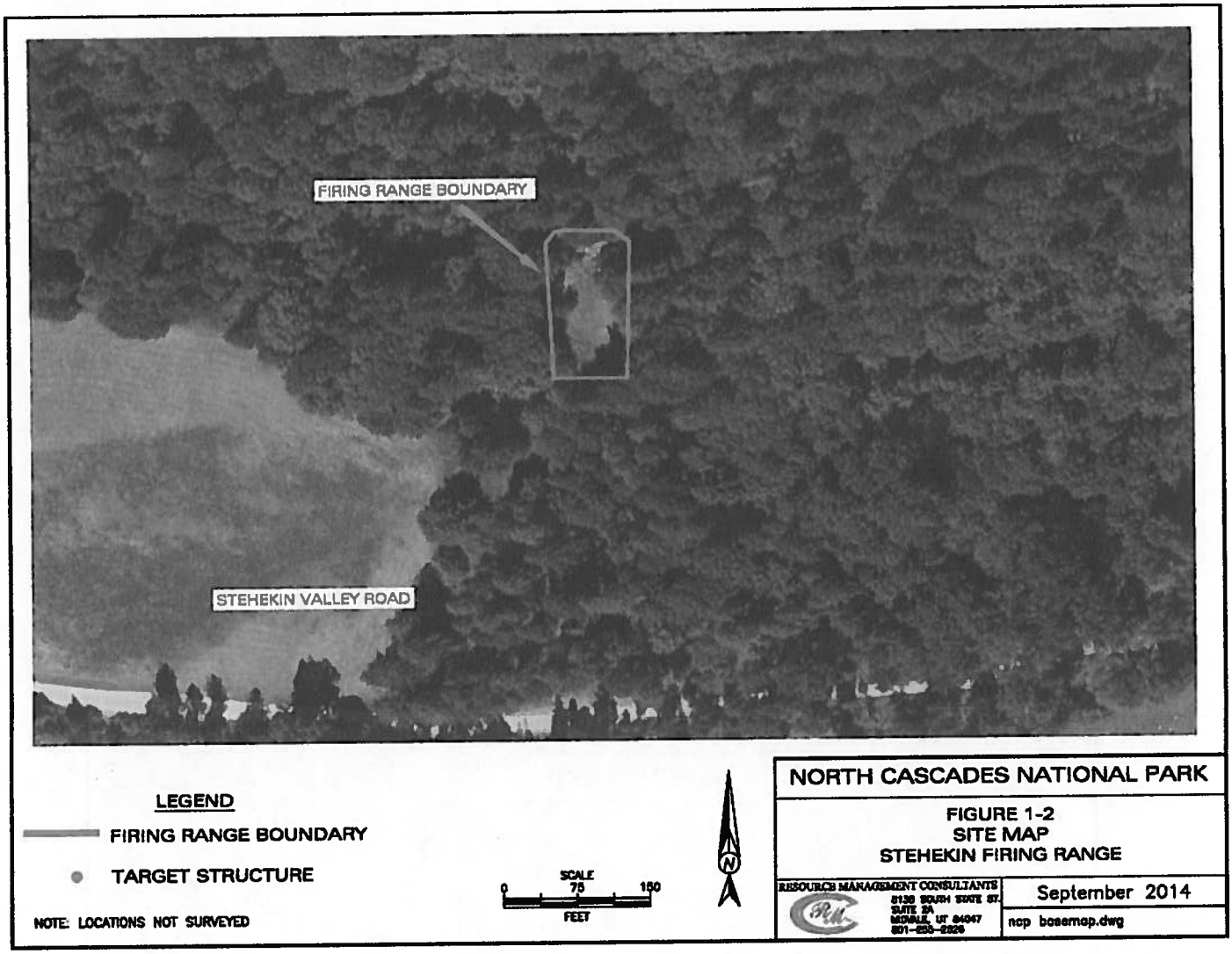
Stephen J. Mitchell, PE
Operations/Environmental Programs Branch Chief and Project Manager
National Park Service, Pacific West Region

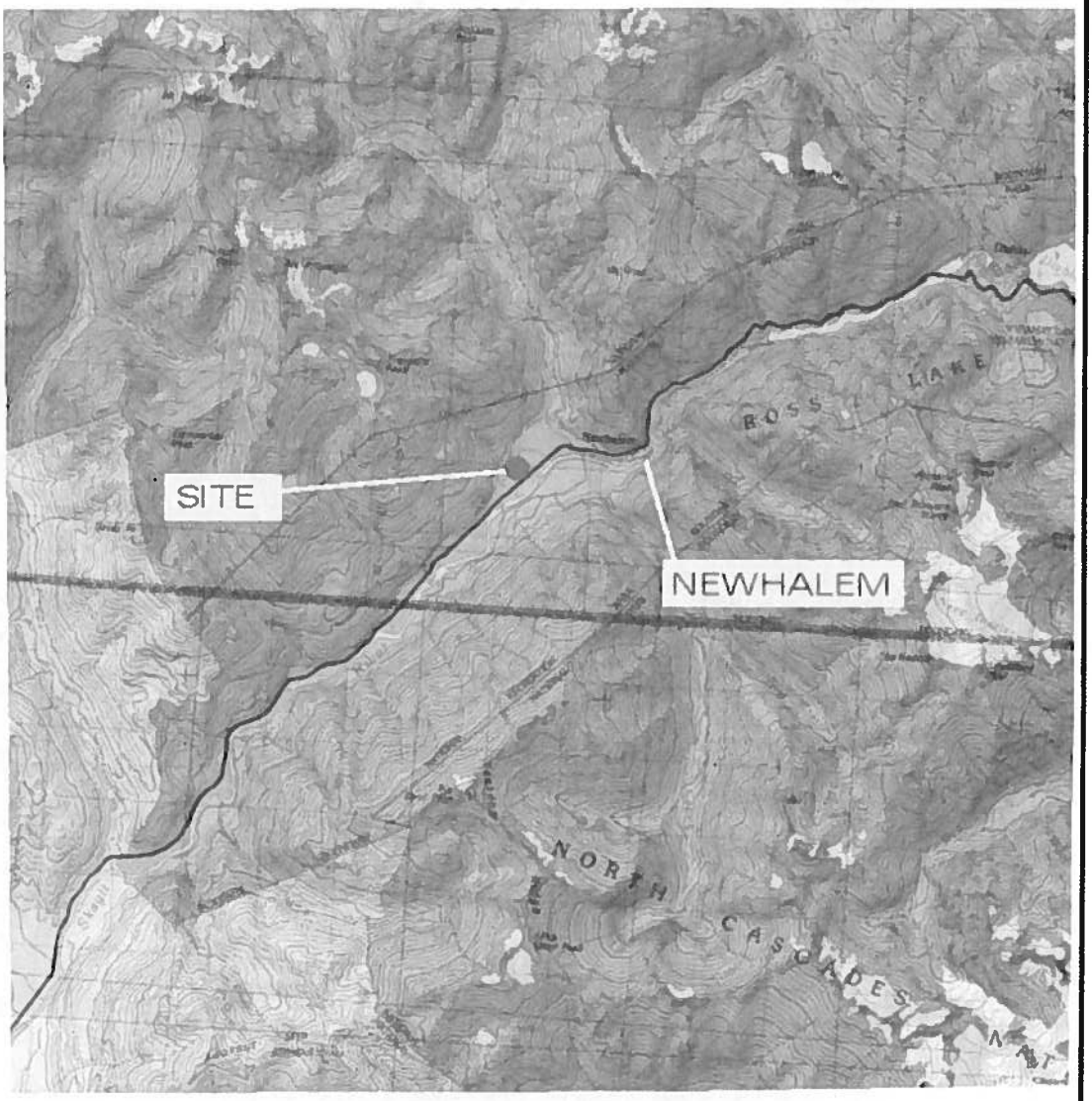
Approved: _____ Date: 11/6/14

Christine S. Lehnertz
Regional Director
National Park Service, Pacific West Region

APPENDIX A
FIGURES


SITE
STEHEKIN
NOTE:
LOCATIONS NOT SURVEYED
NOT TO SCALE
NORTH CASCADES NP
FIGURE 1-1
STEHEKIN FIRING RANGE
SITE MAP
RESOURCE MANAGEMENT CONSULTANTS
6138 SOUTH STATE ST.
SUITE 2A
MIDVALE, UT 84047
801-255-2828
September 2014
nc site map.dwg


FIRING RANGE BOUNDARY
STEHEKIN VALLEY ROAD
LEGEND
FIRING RANGE BOUNDARY
TARGET STRUCTURE
NOTE: LOCATIONS NOT SURVEYED
SCALE
0
75
150
FEET
N
NORTH CASCADES NATIONAL PARK
FIGURE 1-2
SITE MAP
STEHEKIN FIRING RANGE
RESOURCE MANAGEMENT CONSULTANTS
September 2014
ncp basemap.dwg



NOTE:
LOCATIONS NOT SURVEYED

NOT TO SCALE

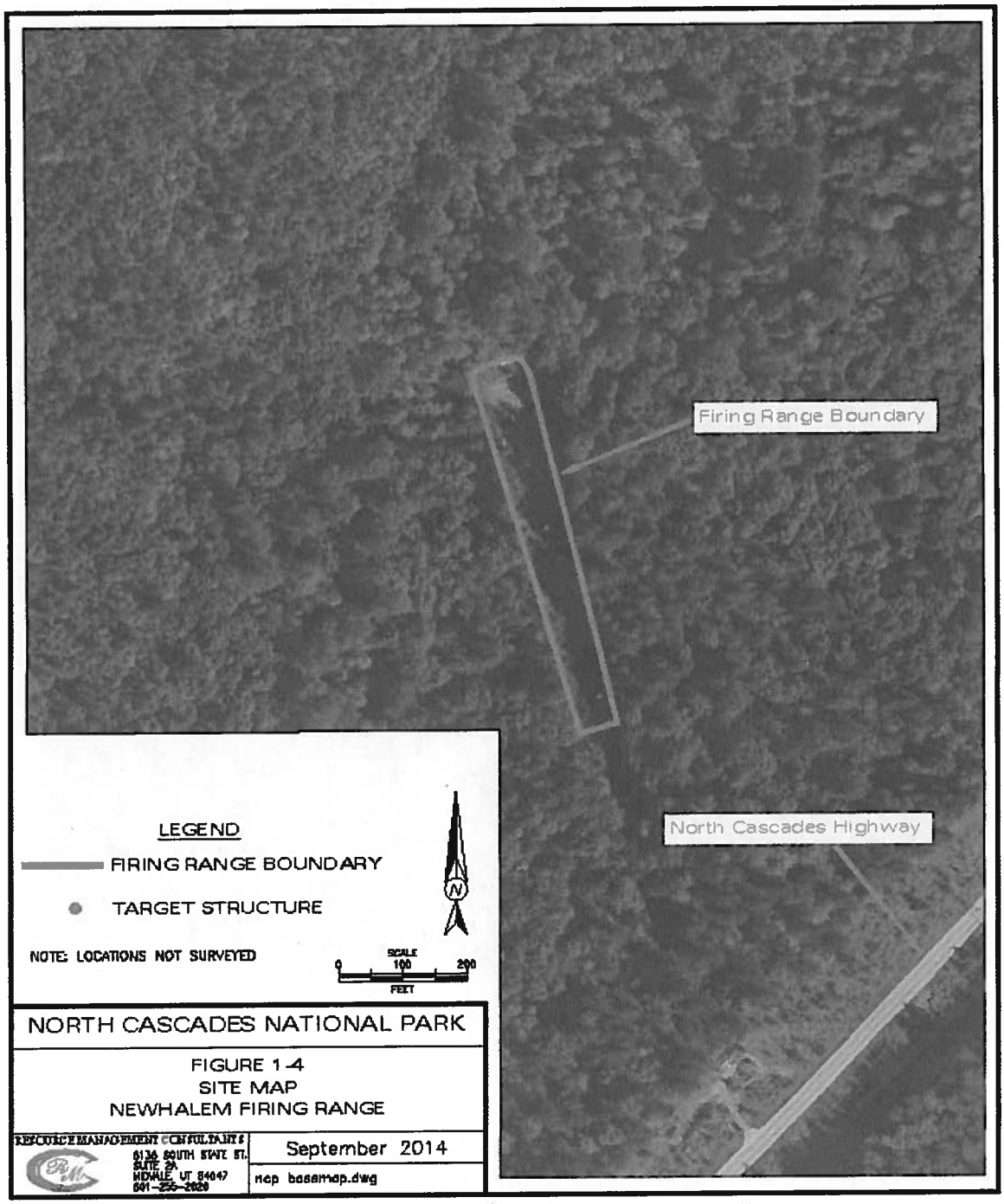
NORTH CASCADES NP

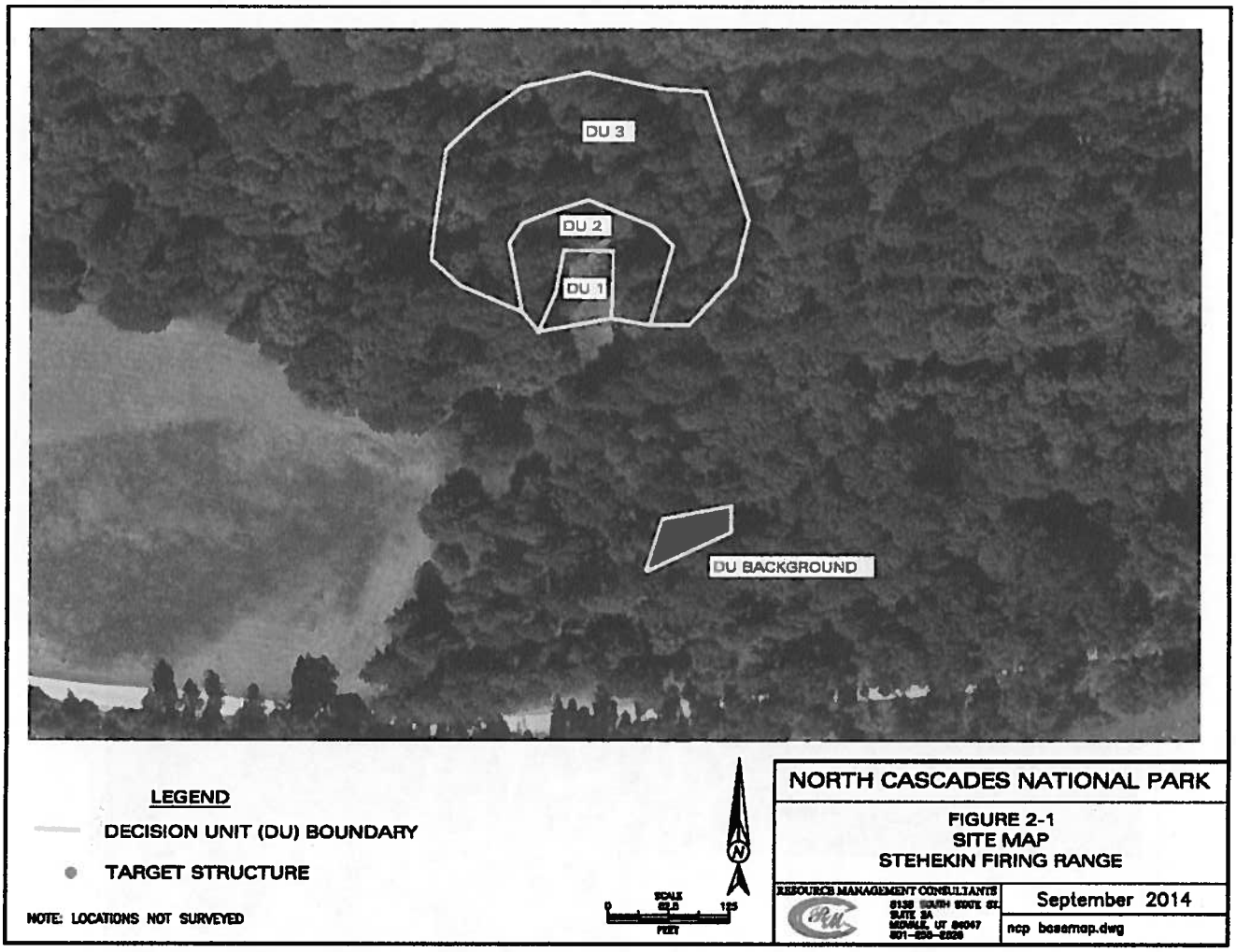
FIGURE 1-3
NEWHALEM FIRING RANGE
SITE MAP

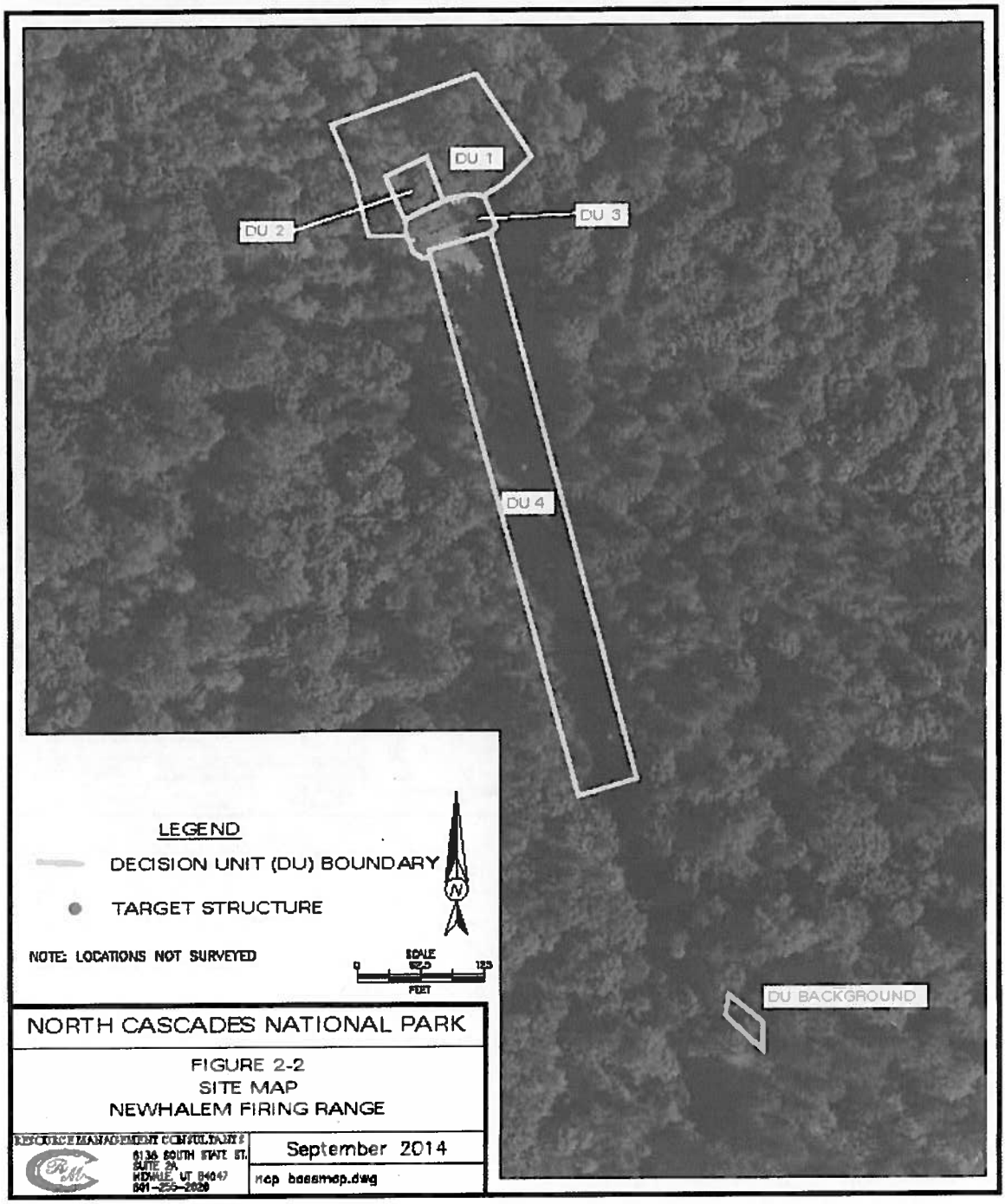
RESOURCE MANAGEMENT CONSULTANTS
8138 SOUTH STATE ST.
SUITE 3A
MIDVALE, UT 84047
801-255-2626

September 2014

nc site map.dwg


Firing Range Boundary
North Cascades Highway
LEGEND
FIRING RANGE BOUNDARY
TARGET STRUCTURE
NOTE: LOCATIONS NOT SURVEYED
N
SCALE
0
100
200
FEET
NORTH CASCADES NATIONAL PARK
FIGURE 1-4
SITE MAP
NEWHALEM FIRING RANGE
RESOURCE MANAGEMENT CONSULTANTS
6136 SOUTH STATE ST.
SUITE 2A
MIDVALE UT 84047
801-255-2020
September 2014
nap basemap.dwg


DU 3
DU 2
DU 1
DU BACKGROUND
LEGEND
DECISION UNIT (DU) BOUNDARY
TARGET STRUCTURE
NOTE: LOCATIONS NOT SURVEYED
N
SCALE
0
125
FEET
NORTH CASCADES NATIONAL PARK
FIGURE 2-1
SITE MAP
STEHEKIN FIRING RANGE
RESOURCE MANAGEMENT CONSULTANTS
September 2014
ncp basemap.dwg


DU 1
DU 2
DU 3
DU 4
DU BACKGROUND
LEGEND
DECISION UNIT (DU) BOUNDARY
TARGET STRUCTURE
NOTE: LOCATIONS NOT SURVEYED
N
SCALE
0
125
FEET
NORTH CASCADES NATIONAL PARK
FIGURE 2-2
SITE MAP
NEWHALEM FIRING RANGE
September 2014
map basemap.dwg

APPENDIX B

ABBREVIATIONS & ACRONYMS

Stehekin and Newhalem Firing Ranges

AM	Action Memorandum
ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COPC	Constituent of Potential Concern
DU	Decision Unit
EE/CA	Engineering Evaluation/Cost Analysis
EDL	Environmental and Disposal Liabilities
ERE	Streamlined Ecological Risk Evaluation
HHRE	Streamlined Human Health Risk Evaluation
MTCA	State of Washington Model Toxics Control Act
NAAQS	National Ambient Air Quality Standards
NCP	National Oil Pollution and Hazardous Substances Contingency Plan
NOCA	North Cascades National Park Complex
NPL	National Priorities List
NPS	National Park Service
ORNL	Oak Ridge National Laboratory
PRG	Preliminary Remedial Goal
RBC	Risk-Based Concentrations
RCRA	Resource Conservation and Recovery Act
RMC	Resource and Environmental Management Consultants, Inc
TCLP	Toxicity Characteristic Leaching Procedure
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
WAC	Washington Administrative Code
WaDOE	Washington Department of Ecology

APPENDIX C
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